existing in the cell substance, Rosin determined their nature in the following manner.

Pieces of nerve tissue from the cord and brain were hardened in formal and then bleached in chlorine water. Some of these pieces were without further manipulation, imbedded and examined, whereas others were treated with osmic acid. It was found that the pigment normally present in the cells, had been entirely removed by the bleaching process, yet the dark-brown granula were shown in those specimens treated with osmic acid. Therefore, these granula bore no relationship to the normal cell-pigment, inasmuch as this had been previously removed.

Rosin then succeeded in extracting the fat from the cells, by means of alcohol and ether. Afterwards using very dilute osmic acid solutions of one-third to one-half per cent., he found that no dark-brown granula were shown in the sections. He concludes, therefore, that these granula are fatty by nature, as dilute osmic acid is a well-known reagent to detect the presence of fat. By the use of acetic acid, he proved that the granula were not albuminous.

Summing up, Rosin finds that the normal ganglionic cells of adults are filled with a granular substance, which is of a fatty nature, often pigmented light yellow. The pigmentation becomes more intense with advancing years, and is to a certain extent, independent of the fat tissue itself. This condition—"lipochromic"—manifested in nearly all ganglionic cells, is almost entirely absent in Purkinje's, and in the smallest cells is altogether absent. Infants show only traces of this condition, and in small animals it is lacking. This lipochromic process is also present in the adventitia of the blood vessels of the central nervous system, arteries, veins and capillaries, where it can be detected by the same methods. It is to be regretted that the microscopic specimens which served to illustrate Rosin's work, were not reproduced in the article reviewed. STERNE.

CLINICAL.

Two Cases of Tetanus following the repeated Injections of Morphia. By D. J. Leech, M.D. (*The Med. Chronicle*, Manchester, May, 1896). The first case was that of a medical man, 35 years of age, who died three days after the onset of the tetanic paroxysms. He had contracted the habit of injecting himself frequently with large quantities of morphia. There was reason to believe he had paid but little attention either to the cleanliness of the syringe, or to the clearness of the solution he used.

The second case was that of a man, who for several years had taken morphine for the relief of great abdominal pain and sickness. He developed violent tetanic paroxysms from which he died in a few hours. His body was covered with marks due to the hypodermic injections of morphia.

Similar cases are reported in the *British Medical Journal* for November, 1879, and for July, 1892, and in the *Lancet* for 1867, Vol. II., p. 26. MEIROWITZ.

The Doctrine of the Neurons and the Discharge Theory. By Prof. Bechterew. (*Neurol. Centralbl.*, 1896. Nos. 2 and 3). The transmission of the nerve impulses from one nerve element to the other, has been explained by Golgi, in assuming the existence of anastomoses between the ramifications of various neurons. In opposition to this anastomosis theory, Forel, His, Ramon y Cajal and others put up the contact theory, explaining this transmission by contiguity of the end ramifications of one element with those of the other. The newest theory is the discharge-theory of Bechterew:

"The end ramifications of the one nerve element do not come in direct contact with those of the other, but come only near each other at varying distance. The transmission of the nerve impulse from one element to the other, takes place by a difference in the tension of the energy between these two elements, which causes a discharge from one neuron to the other. This discharge may be compared to that taking place in a series of Leyden jars, which are discharged one after the other, and one into the other. The greater or lesser proximity of the nerve endings of one neuron to the processes or the body of the other, will evidently cause a greater or lesser resistance to the transmission of the nerve stimulation from the one neuron to the other. The resistance to the conduction will further depend upon the number of the nerve elements required to compose the corresponding conducting paths."

The nerve elements are everywhere equal in their essential properties. We must ask, therefore, by what we should explain the qualitative difference of the sensations to be received by us (tactile, temperature, pain sensations, and those of taste, smell, hearing and seeing). B. comes to the conclusion that this qualitative difference of our sensations is not to be explained by the unessential varieties in the structure of our centres, but that it is in direct relation with the difference in the character of the nerve-stimulations at the periphery (skin, retina, labyrinth, etc.), and with the so caused peculiarities of the nerve-current.

The arguments which the author produces in support of his theory, must be read in the original. ONUF.